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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,740	01/13/2004	Andy Ming Fen Tung	1238.68990	1841

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CHICAGO, IL 60606

EXAMINER
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BOWERS, NATHAN ANDREW

ART UNIT	PAPER NUMBER
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1797

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/756,740	Applicant(s) TUNG, ANDY MING FEN	
	Examiner Nathan A. Bowers	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1, 5-8, 12, 15-19, 21, 23-26, 30, 35, 36, 39 and 40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-8, 12, 15-19, 21, 23-26, 30, 35, 36, 39 and 40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

- 1) Claims 1, 5-8, 12, 15-19, 21, 23, 26, 30, 35, 36, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shindo (US 5587320) in view of the English translations of

Kitsui (JP11300324) and/or Kitsui (JP 2001120460) and further in view of Shimizu (EP 0599661).

With respect to claims 1, 5-7 and 30, Shindo discloses a treatment apparatus comprising a reactor basin (Figure 9:150) for containing raw material and excrement provided with at least two concave parts (Figure 10:521 and Figure 10:522) having curved bottoms. A temperature control means (Figure 9:153) in the form of a heater and thermostat are provided for maintaining the temperature within the reactor basin at a predetermined range. At least two mixing devices (Figure 9:140 and Figure 9:145) are positioned within each of the concave parts. This is disclosed in column 13, line 44 to column 14, line 61. Shindo, however, does not expressly state that each shaft includes a helical blade stirrer provided on a plurality of spokes. Shindo does not indicate that the spokes are divided into two parts with helical directions that are reverse.

The Kitsui references disclose treatment apparatuses designed for processing excrement. Mixing devices are provided in the form of a rotation shaft comprising a helical blade stirrers supported by a plurality of spokes. Kitsui additionally indicates that mixing rings are provided for loosening and scraping. It is clear from the Figures that the helical blade stirrers are divided into two continuous and evenly spaced parts. The apparatus of Kitsui '460 clearly involves the use of a rotation shaft comprising spokes divided into two parts with helical directions that are reverse.

Shindo and Kitsui are analogous art because they are from the same field of endeavor regarding organic waste processing devices.

At the time of the invention, it would have been obvious to modify the mixing means of Shindo according to design set forth by Kitsui. Kitsui indicates that the use of a rotation shaft

comprising multiple sets of helical blade stirrers are well known in the art and effective in the processing of organic wastes. It would have been apparent to use any known agitation blade configuration in the system of Shindo in order to enhance the treatment procedure.

The combination of Shindo and Kitsui still differs from the claimed apparatus because they do not expressly indicate that the helical blade stirrers of the multiple mixing devices overlap partially.

Shimizu discloses a reactor basin (Figure 1:1) for containing raw material and excrement. The reactor basin includes at least two mixing devices (Figure 2:6) that comprise a rotation shaft and a plurality of mixing blades. This is described in column 3, line 21 to column 4, line 48. It is apparent from Figures 2, 3 and 11 that the mixing blades overlap in their movement.

Shindo, Kitsui and Shimizu are analogous art because they are from the same field of endeavor regarding organic waste treatment apparatuses.

At the time of the invention, it would have been obvious to alter the construction of the system of Shindo in order to ensure that the helical blade stirrers overlap in their movement. This would have aided mixing by guaranteeing that all organic materials located between the two rotation shafts are thoroughly agitated. Overlap in the mixing regions of the multiple mixing devices ensures that there is no dead area formation in the reactor.

With respect to claim 8, Shindo, Kitsui and Shimizu disclose the apparatus in claim 1 wherein the reactor basin is covered by a top plate (Figure 9:151) on which a drop inlet is

provided. Shindo states that materials to be composted are moved through the drop inlet and collected in the reactor basin.

With respect to claims 12, 15-19 and 23, Shindo, Kitsui and Shimizu disclose the combination as set forth above. Shindo and Kitsui each disclose the use of a control unit to regulate the temperature and movement of the agitation system. For instance, Shindo indicates in column 13, line 66 to column 14, line 5 that heating plates (Figure 9:153) are provided on the outer surface of the reaction basin. Column 11, lines 46-51 state that an insulation layer is provided. In addition, Kitsui states that it is known in the art to provide an organic waste reactor basin underneath a floor. Kitsui indicates that excrement is allowed to move through the floor via a conduit that has an outlet in communication with the reactor basin.

At the time of the invention, it would have been obvious to utilize the system of Shindo as a bio-toilet in such a way that the organic waste reactor basin is provided underneath a floor with a conduit in communication with the reactor inlet. The Kitsui references teach that this configuration is known in the art as a mechanism by which to immediately and effectively begin the degradation of excrement. In light of the teachings of Kitsui, one of ordinary skill in the art would recognize that the reactor of Shindo is fully capable of being positioned underneath the intermediary floor of a bio-toilet.

With respect to claims 21 and 26, Shindo, Kitsui and Shimizu disclose the apparatus set forth in claims 13 and 19 as set forth in the 35 U.S.C. 103 rejections above. Furthermore, Shindo indicates in column 13, line 66 to column 14, line 5 that heating plates (Figure 9:153) are

provided on the outer surface of the reaction basin. Column 11, lines 46-51 state that an insulation layer is provided. Although Shindo does not expressly disclose the use of spring hooks to secure the insulation layer, the use of spring hooks is considered to be well known in the art and fully compatible with the design set forth by Shindo.

With respect to claims 35 and 36, Shindo, Kitsui and Shimizu disclose the method in claim 30 wherein the mixing means is driven within a predetermined time interval. This is described in column 4, lines 4-21 and column 12, lines 46-64. Shindo states that the mixing devices is driven in forward and reverse directions so as to sufficiently stir the waste.

With respect to claim 39, Shindo, Kitsui and Shimizu disclose the method in claim 30 wherein the range of predetermined temperature is about 50 to 70 degrees Celsius. Column 13, lines 7-12 state that the temperature within the reactor is maintained at 55 to 65 degrees Celsius. Column 14, lines 2-4 indicate that the temperature within the reactor is maintained at 60 to 80 degrees Celsius. As previously described in the above rejections, Shindo further teaches that the mixing devices are driven when the treatment apparatus comes into use.

With respect to claim 40, Shindo, Kitsui and Shimizu disclose the method set forth in claim 39 as set forth in the 35 U.S.C. 103 rejections above, however do not expressly disclose that the mixing means is driven after the degradation process is completed. Regardless, it would have been obvious to continue rotation of the mixing means during cleaning procedures following the treatment of wastes. It would have been apparent to one of ordinary skill in the art

that rotation of the mixing means would ensure that every surface of the agitation blades is exposed during cleaning.

2) Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shindo (US 5587320) in view of the English translations of Kitsui (JP11300324) and/or Kitsui (JP 2001120460) and Shimizu (EP 0599661) as applied to claim 23, and further in view of Hudgins (US 6024513).

Shindo, Kitsui and Shimizu disclose the apparatus set forth in claim 23 as set forth in the 35 U.S.C. 103 rejections above, however do not expressly state that a plurality of dispensing holes are provided for moving the waste into the reactor basin.

Hudgins discloses a reactor basin (Figure 1:12) in which wastes to be decomposed are dripped through the top of the basin using a plurality of dispensing hoses. This is described in column 5, lines 5-21.

Shindo, Kitsui, Shimizu and Hudgins are analogous art because they are from the same field of endeavor regarding organic waste processing systems.

At the time of the invention, it would have been obvious to include a manifold comprising a plurality of openings at the drop inlet disclosed by Shindo in order to disperse waste material evenly across the reactor basin. As evidenced by Hudgins, this system for adding waste material to a fermentation system is known in the art. The inclusion of a conduit comprising multiple dispensing holes would have required only minor structural alterations to the existing device set forth by Shindo. The use of a inlet conduit comprising a plurality of



openings would have been beneficial because it would have worked to improve mixing and ensure that all added waste materials are processed in an equivalent manner.

### *Response to Arguments*

Applicant's arguments filed 25 October 2007 with respect to the 35 U.S.C. 102 rejections involving Shindo have been fully considered and are persuasive. Therefore, these rejections have been withdrawn. However, upon further consideration, a new ground of rejection is made in view of the combination of Shindo with Kitsui '324 and/or Kitsui '460 and Shimizu.

The Kitsui references address the deficiencies of Shindo by indicating that it is known in the art to utilize a helical blade stirrer provided on a rotation shaft by a plurality of spokes and divided into two parts comprising helical directions that are reverse.

The Shimizu reference addresses the deficiencies of Shindo by indicating that it is known in the art to provide two helical blade stirrers that are partially overlapped.

### *Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan A. Bowers whose telephone number is (571) 272-8613. The examiner can normally be reached on Monday-Friday 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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